REMARKS:

Claims 1-25 were presented for examination and were pending in this application. In an Official Action dated July 19, 2004, claims 1-25 were subjected to a restriction and/or election requirement with claim 7-17 being provisionally elected with traverse. In addition, claims 7-17 were rejected. Applicants thank Examiner for examination of the claims pending in this application and addresses Examiner's comments below.

Applicants herein amend claim 7. These changes are believed not to introduce new matter, and their entry is respectfully requested. The claim has been amended to expedite the prosecution of the application in a manner consistent with the Patent Office Business Goals, 65 Fed. Reg. 54603 (Sept. 8, 2000). In making these amendments, Applicants have not and do not narrow the scope of the protection to which Applicants consider the claimed invention to be entitled and do not concede that the subject matter of the claim was in fact disclosed or taught by the cited prior art. Rather, Applicants reserve the right to pursue such protection at a later point in time and merely seek to pursue protection for the subject matter presented in this submission.

Based on the above Amendment and the following Remarks, Applicants respectfully request that Examiner reconsider all outstanding objections and rejections, and withdraw them.

Restriction Requirement

In the 1st paragraph of the Office Action, Examiner required a restriction to one of the following inventions under 35 U.S.C. § 121 because the inventions are distinct.

I. Claims 1-6 and 18-25

II. Claims 7-17

Applicants confirm the provisional election of claims 7-17 and respectfully traverse the restriction requirement. Applicants kindly requests Examiner's reconsideration based on the following remarks.

The MPEP indicates that:

> Under the statute an application may properly be required to be restricted to one of two or more claimed inventions only if they are able to support separate patents and they are either independent (MPEP § 806.04 - § 806.04(i)) or distinct (MPEP § 806.05 - § 806.05(i)).
> If the search and examination of an entire application can be made without serious burden, the examiner must examine it on the merits, even though it includes claims to independent or distinct inventions.

See, MPEP § 803 (emphasis added).

The Examiner has indicated that these inventions are distinct because the Groups are directed to subcombinations that are separately usable (Group I has the utility of "routing data based upon routing information" and Group II of "creation and distribution of routing information (FEC table information) in a network"). The Examiner further indicates that the two groups have acquired a separate status in the art as shown by their different classification into class 709/238 and class 709/242. However, the classifications indicated by Examiner shows that the search and examination of the entire application can be made without serious burden.

Class 709/242, which Examiner has classified Group II under, is a subclass under subclass 709/238, which Examiner has classified Group I under. See USPTO Classification Definitions, p. 709-18. Therefore, the field of search for both classifications is the same. In fact, several issued U.S. Patents are classified under both of these classes together. See search result listing attached. Thus, since "search and examination of [the] entire application can be made without serious burden" to the Examiner, "the examiner must examine it on the merits, even though it includes claims to independent or distinct inventions." See MPEP § 803.

Therefore, for at least these reasons, Applicants kindly request that Examiner reconsider and withdraw the restriction requirement.

Objection to the Specification

In the 6th paragraph of the Office Action, Examiner objects to the Specification stating that "intermediate node 214" is mislabeled at p. 11, line 23. Applicants amend the specification herein to correct this typographical error. No new matter has been entered. Applicants respectfully request withdrawal of this objection.

Response to Rejection Under 35 USC 102(e)

In the 8th paragraph of the Office Action, Examiner rejects claims 7, 8, and 11-17 under 35 USC § 102(e) as allegedly being anticipated by U.S. Patent No. 6,728,777 to Lee et al. ("Lee"). This rejection is now traversed.

Claim 7 recites

> In a network having a headend and a tailend, a method of sharing bandwidth on the network among one or more internet service providers (ISPs) coupled to the tailend, the network receiving data packets from end-users coupled to the headend and associated with particular ones of the one or more ISPs, the method comprising the steps of:
>
> creating, at the tailend, a forwarding equivalency class (FEC) for each of the one or more ISPs coupled to the tailend;
>
> passing a label for each FEC towards the headend;
>
> receiving, at the headend, a data packet from an end-user;
>
> determining the ISP associated with the end-user; and
>
> routing the data packet through the tailend to only the ISP associated with the end-user using the label stored in the FEC table for the FEC of the ISP.

The claimed invention includes "determining the ISP associated with the end-user" and "routing the data packet through the tailend to only the ISP associated with the end-user ...." These claimed features beneficially allow multiple ISPs to efficiently share the customer access

and backbone networks because packets from end-users are routed through the shared network to only the appropriate ISP associated with each end-user.

However, Lee does not describe "determining the ISP associated with the end-user" and "routing the data packet through the tailend to only the ISP associated with the end-user ...." Lee describes a method for engineering "paths for multicast traffic in an IP network by directing control messages to setup multicast trees on engineered paths." Lee, Abstract (emphasis added). The method described in Lee is fundamentally different from the claimed invention. Lee's description is directed to data traffic multicasting:

> The method according to the invention provides a routing mechanism applicable to multicast routing protocols (MRPs) such as PIM-SM, CBT, BGMP, Express or Simple Multicast, which will be called `control driven` which is different from the `data driven` or flood and prune protocols like the Distance-Vector Multicast Routing Protocol (DVMRP) or PIM-DM. This method also assumes a multicast group/tree having a common service level requirement.

Lee, col. 4, lines 22-31. Lee defines multicasting as follows:

> Multicasting is defined as a communications process involving one or more senders and receivers, information transmitted by any participant in the multicast is received by every other participant in the multicast.

Lee, col. 1, lines 47-50. The FECs in Lee "are defined for the multicast tree." Lee, col. 7, lines 22-23. In in some instances for a multicast tree within an ISP's network. See id. at col. 9, lines 33-44.

Conversely, the "routing" element of claim 7 is different from the multicasting method desribed in Lee. The routing elements involves routing packets from an end-user to only the proper ISP that is associated with that end-user. If the routing of the present invention was like the multicasting of Lee, "information transmitted by any participant in the multicast [would be] received by every other participant in the multicast." Thus, every ISP and every end-user would

receive every data packet sent by any other user. This would defeat the ability of the present invention to efficiently share the customer access and backbone networks among multiple ISPs by properly "routing the data packet through the tailend to only the ISP associated with the end-user."

Moreover, Lee does not disclose "determining the ISP associated with the end-user." The only disclosure Lee provides with respect to ISPs is simply that ISPs may use the multicasting method described for certain purposes:

> The multicast TE mechanism allows Internet service providers (ISPS) to define particular FECs for their network; the resources required to receive traffic from a particular root prefix; to decrease fanouts at a node by limiting the number paths towards this node and establishing constraint paths to carry multicast traffic; to experiment with heuristics algorithms how to better engineer multicast trees; or to use a function to dynamically compute suitable paths based on current or predicted network resources. All these additional network, or content provider specific functions to engineer traffic can be developed independently of the conventional multicast traffic engineering scheme.

Lee, col. 9, lines 33-44. As is evident from this description, Lee does not indicate that the multicasting method it describes requires "determining the ISP associated with the end-user." Lee indicates that the ISPS have control over their network in order to define the FECs for multicasts within their network. There is no indication of any shared network between ISPS so as to require "determining the ISP associated with a particular end-user" as recited in claim 7.

In a rejection under 35 U.S.C. §102, each and every claim element must be present in the applied reference. However, Examiner has failed to point out many of the claimed elements, for example, "determining the ISP associated with the end-user" and "routing the data packet through the tailend to the ISP associated with the end-user using the label stored in the FEC table for the FEC of the ISP." Applicants respectfully submit that Lee does not disclose these elements.

As claims 8 and 11-17 are dependent on claim 7, all arguments advanced above with respect to claim 7 are hereby incorporated so as to apply to claims 8 and 11-17. Accordingly, Applicants respectfully submit that for at least these reasons claims 7, 8, and 11-17 are patentably distinguishable over the cited reference. Therefore, Applicants respectfully request that Examiner reconsider the rejection, and withdraw it.

Response to Rejection Under 35 USC 103(a) in View of Lee and Aggarwal

In the 10th paragraph of the Office Action, Examiner rejects claims 9 and 10 under 35 USC § 103(a) as allegedly being unpatentable in view of Lee and U.S. Patent No. 6,330,614 to Aggarwal et al. ("Aggarwal"). This rejection is respectfully traversed.

Claims 9 and 10 are dependent on claim 7. The combination of Aggarwal with Lee does not cure the deficiencies in Lee described above with respect to claim 7. For example, the combination of Lee and Aggarwal still fails to show or describe "determining the ISP associated with the end-user" and "routing the data packet through the tailend to only the ISP associated with the end-user ...."

Aggarwal simply describes a method for "obviating current processing time and addressing space limitations" in information processing networks. See Aggarwal, Abstract. In particular, Aggarwal describes using the checksum field to extend destination host address:

> This new format of the invention suggests making all A-C classes extend the current Network Address by eight bits, and flowing the lower 8 bits of the Host address into the old Checksum field, as in FIG. 8 (labeled "source" and "Destination Host address " in FIG. 7).

Id. at col. 10, lines 49-53. Aggarwal describes the use of this method to eliminate MPLS headers altogether. See Id. at col. 12, lines 13-36.

Accordingly, Aggarwal does not add the elements of claim 7 shown above to be lacking in Lee. Specifically, Aggarwal does not describe or susggest "routing the data packet through the tailend to the ISP associated with the end-user using the label stored in the FEC table for the FEC of the ISP." In fact Aggarwal teaches away from such a routing since it describes using the checksum replacement method instead of MPLS headers, which are used to for network routing using labels stored in FEC tables.

Thus, the combination of Lee and Aggarwal do still not constitute the claimed invention of claim 7. Specifically, the combined reference also lacks "determining the ISP associated with the end-user" and "routing the data packet through the tailend to only the ISP associated with the end-user ..." as noted above. As dependent on claim 7, claims 9 and 10 also include these claimed elements. Thus, Applicants respectfully submit that Lee and Aggarwal, alone or in combination, do not anticipate or render obvious claims 9 and 10. Therefore, Applicants respectfully request that Examiner reconsider the rejection, and withdraw it.

Conclusion

In sum, Applicants respectfully submit that claims 1 through 25, as presented herein, are patentably distinguishable over the cited references (including references cited, but not applied). Therefore, Applicants request reconsideration of the basis for the rejections and restriction requirements to these claims and request allowance of them.

In addition, Applicants respectfully invite Examiner to contact Applicants' representative at the number provided below if Examiner believes it will help expedite furtherance of this application.

RESPECTFULLY SUBMITTED,
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